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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JOCHEN FINK, MICHAEL ROTH and RUDOLF PFAENDNER

Appeal 2009-003581
Application 10/518,873
Technology Center 1700

Decided:¹ July 29, 2009

Before EDWARD C. KIMLIN, BRADLEY R. GARRIS, and
MARK NAGUMO, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

¹The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the decided date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 and 7-20. A copy of claim 1 is illustrative:

1. A process for the preparation of a grafted thermoplastic or elastomeric polymer or copolymer, which process comprises in a first step

A) the preparation of a nitroxyl terminated oligomer or polymer by controlled free radical polymerization of an ethylenically unsaturated monomer or monomer mixture

al) in the presence of a nitroxyl ether containing a structural element of formula (1a), wherein X is selected such that cleavage of the O-X bond occurs and a radical X is formed capable of initiating polymerization; or

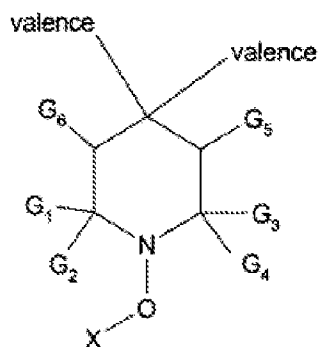
a2) in the presence of a nitroxyl radical containing a structural element of formula (1b) and a free radical initiator capable of initiating polymerization;

where unreacted monomer or monomers are removed and the nitroxyl terminated oligomer, or polymer is isolated,

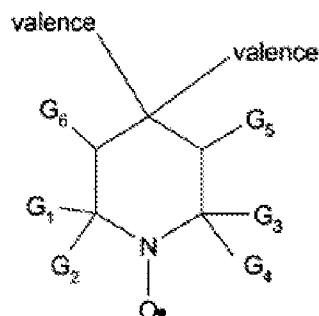
and in a second step

B) heating, mixing and reacting the nitroxyl terminated oligomer or polymer of step A) together with a thermoplastic or elastomeric polymer or copolymer at a temperature of between 150° C and 300° C,

wherein the structural elements of formula (1a) and (1b) are



(Ia)



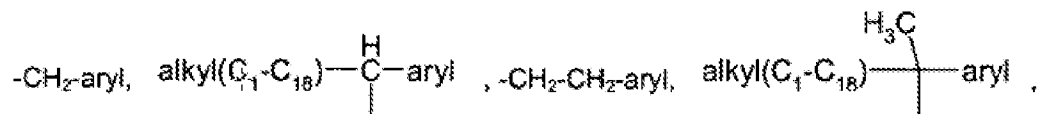
(Ib)

wherein

G_1, G_2, G_3, G_4 are independently C_1 - C_6 alkyl or G_1 and G_2 or G_3 and G_4 , or G_1 and G_2 and G_3 and G_4 together form a C_5 - C_{12} cycloalkyl group; and G_5, G_6 independently are H, C_1 - C_{18} alkyl, phenyl, naphthyl or a group $COOC_1$ - C_{18} alkyl,

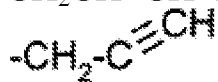
where

X is selected from the group consisting of

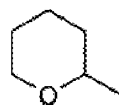


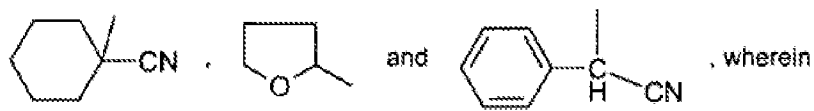
$(C_5\text{-}C_6\text{cycloalkyl})_2\text{CCN}$, $(C_1\text{-}C_{12}\text{alkyl})_2\text{CCN}$, $-CH_2\text{CH=CH}_2$, $(C_1\text{-}C_{12})\text{alkyl-}$
 $\text{CR}_{20}\text{-C(O)-(C}_1\text{-C}_{12})\text{alkyl}$, $(C_1\text{-}C_{12})\text{alkyl-CR}_{20}\text{-C(O)-(C}_6\text{-C}_{10})\text{aryl}$, $(C_1\text{-}$
 $C_{12})\text{alkyl-CR}_{20}\text{-C(O)-(C}_1\text{-C}_{12})\text{alkoxy}$, $(C_1\text{-}C_{12})\text{alkyl-CR}_{20}\text{-C(O)-phenoxy}$,
 $(C_1\text{-}C_{12})\text{alkyl-CR}_{20}\text{-C(O)-N-di(C}_1\text{-C}_{12})\text{alkyl}$, $(C_1\text{-}C_{12})\text{alkyl-CR}_{20}\text{-CO-N}$
 $\text{H(C}_1\text{-C}_{12})\text{alkyl}$, $(C_1\text{-}C_{12})\text{alkyl-CR}_{20}\text{-CO-N H}_2$,

$-CH_2\text{CH=CH-CH}_3$, $-CH_2\text{-C(CH}_3\text{)=CH}_2$, $-CH_2\text{-CH=CH-phenyl}$,



3-cyclohexenyl, 3-cyclopentenyl,





R₂₀ is hydrogen or C₁-C₁₂alkyl;

the alkyl groups are unsubstituted or substituted with one or more -OH, -COOH or -C(O)R₂₀ groups;

and

the aryl groups are phenyl or naphthyl which are unsubstituted or substituted with C₁-C₂alkyl, halogen, C₁-C₁₂alkoxy, C₁-C₁₂alkylcarbonyl, OH, -COOH or -COO(C₁-C₁₂)alkyl and

where the thermoplastic or elastomeric polymer or copolymer is selected from the group consisting of low density polyethylene, high density polyethylene, polypropylene, polystyrene, styrene-block copolymers, ethylene-propylene-diene modified rubber, ethylene propylene rubber, polybutylene, polyisobutylene and poly-4-methylpentene-1.

The Examiner relies upon the following reference as evidence of obviousness:

Chin (Chin)

6,444,754 B1

Sep. 3, 2002

Appellants' claimed invention is directed to a process for preparing a grafted thermoplastic or elastomeric polymer or copolymer. The process entails preparing a nitroxyl terminated oligomer or polymer and reacting the oligomer or polymer with a thermoplastic or elastomeric polymer or copolymer at a temperature within a recited range. The nitroxyl terminated oligomer or polymer is prepared by free radical polymerization of an ethylenically unsaturated monomer in the presence of either a nitroxyl ether containing a structural element of formula (1a), or a nitroxyl radical containing a structural element of formula (1b). Substituent X of formula

(1a) is selected from a group that includes-CH₂-aryl and other alkyl and substituted aryl groups.

Appealed claims 1 and 7-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chin.

We have thoroughly reviewed the respective positions advanced by Appellants and the Examiner. In so doing, we find that the Examiner has not established that the claimed subject matter would have been obvious to one of ordinary skill in the art in view of the cited prior art. Accordingly, we will not sustain the Examiner's rejection.

Appellants do not dispute the Examiner's factual determination that Chin discloses polymer compositions comprising a blend of polyphenylene ether or polystyrene, polyamides or polyesters, and a compatibilizer that is prepared in the presence of a glycidyl functionalized nitroxyl initiator.

Appellants acknowledge that the compatibilizer of Chin is equivalent to the presently claimed nitroxyl terminated polymer or oligomer. Significantly, however, all the nitroxyl ethers of Chin are substituted by glycidyloxy at the structural position that corresponds to the claimed X substituent. The appealed claims define a number of different substituents for X, but not one of the recited substituents is the glycidyloxy group required by Chin.

Consequently, it is the Examiner's burden to establish that the claimed nitroxyl ether containing a structural element that includes one of the recited substituents would have been obvious over the glycidyl-substituted nitroxyl ether of Chin.

The fatal flaw in the Examiner's position is that the evidentiary basis for the rejection is Appellants' own Specification. The Examiner, realizing that the appealed claims have been amended to remove a glycidyloxy group

as substituent X states that “[i]t is noted also that the same disclosure as that of original claim 7 is still in the specification and therefore even ignoring the disclosure of claim 7 as filed those skilled in the art would assume that glycidyloxy substituents on applicants’ aryl group were encompassed by claim 1” (Ans. 4-5). Strictly speaking, the Examiner’s analysis uses the language of anticipation and misinterprets the claimed subject matter: the Markush group that defines X does not comprise glycidyl groups. However, even reading the language as arguing for obviousness, the rejection fails. It is well settled that an applicant’s specification cannot be cited to establish equivalency between claimed subject matter and that disclosed in the prior art. The Examiner must cite prior art to establish any such equivalency.

The Examiner also points out that the penultimate line of claim 7 on appeal recites that the aryl group may be substituted with C₁-C₁₂alkyl and, therefore, since the C₁-C₁₂alkyl group is not recited to be unsubstituted it may be interpreted as encompassing a glycidyl moiety because “applicant’s original dependant claims, (as well as the specification) recited substituents on “aryl” despite the fact that the independent claim recited nothing about “aryl” being substituted” (Ans. 5, first para.). Manifestly, the Examiner’s rationale improperly cites Appellants’ Specification as evidence of obviousness. Appealed claim 7 specifically recites that the aryl groups may be substituted with C₁-C₁₂alkyl, as well as other groups which do not include a glycidyl moiety, and the recited C₁-C₁₂alkyl group cannot reasonably be interpreted as a substituted C₁-C₁₂alkyl group.

Accordingly, based on the foregoing, the Examiner has not established that the claimed nitroxyl ethers would have been obvious to one

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of ordinary skill in the art based on the glycidyoxy-substituted nitroxyl ethers disclosed by Chin. Consequently, we are constrained to reverse the Examiner's rejection.

REVERSED

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